

Abstract

An interface connector system that provides active buffering, amplification, level shifting, filtering, and other functional electronic processing between one side of the connector and the opposing side. In addition, the local generation of electrical stimulus and signals can be provided on one side of the connector. Modules are installed into a housing for each signal pin at manufacture to perform a specific function. The housing populated with the modules is inserted between a circuit board or connector of a cable assembly on one side and integrated circuit, multi-chip module or another cable connector on the other side. The signals that transit between the two sides are electrically processed. Since the functionality is provided from one side to the next, modules can be stacked to enable multiple processes as the signal transitions from one connector to the next connector. The signal transitions through the interface connector between any combination of printed wiring board, integrated circuit, multi-chip module, system on a chip (SOC), or cable-assembly. By inserting the connector in-line, short connections are provided, hence inductance and capacitance are decreased thereby improving high-speed and RF performance while decreasing noise generation or pickup. The housing of the connector not only mechanically supports the individual modules but also can supply power, grounds and otherwise interconnect the modules. The modules, whose outer profile closely matches the profile of the housing openings can have the powers, grounds and other signals bonded to the conductive layers of the housing by heating the assembly to thereby flow the pre-applied solder or by compression fitting, either by pressing or thermal fitting.